

Frame story

Your group has been tasked to create specification for a system that collects and utilizes public transportation data of relatively large inland city of Tambester. Tambester is planning to build a tram network, but requires data from existing public transportations to make good decisions. Currently, the system will only get the data from the buses, and some general smart city data, but in the future, the trams will be added to the system.

So far the city of Tambester has worked with another consulting company, Con-Salting Oy (not software engineering professionals), whose representatives have gathered this rather rushed (but heavily billed) frame story. Now it is Your job to plan and create coherent specification so that the city of Tambester can publicly ask for bids for the implementation of this public transportation data software.

Public transportation data system of Tambester

System is used to aggregate and display data from public transportation in the city of Tambester. The primary benefits are having information about the utilization rates: on what routes and what times the passengers travel, and having information of what kind of tickets are used (child, student, normal, senior and monthly tickets or single fare). Traffic planners will use the data to plan future route combinations and time tables. They need to be able to update, add and delete routes when the scheduling changes. For that purpose, it is also important for traffic planners to have a simulation feature where they can try different combinations of routes and get approximated results of how, for example, a new route would perform. In future, the traffic bureau might want to experiment with AI enhanced route planning.

City council wants to have regular reports for their monthly meetings to see how well used the public transportation is and how much ticket revenue it generated. They want to have both combined data and per route so that they can evaluate the profitability of offering public transportation to specific areas. Other bureaus outside the traffic bureau are also interested in receiving data from the public transportation data software. One of these is the environmental bureau, who wants to have data about driven kilometers and customers per bus and bus models to calculate how much the usage of busses reduced carbon emissions compared to equivalent private car usage.

In attempt to further promote the public transportation usage and improve passenger satisfaction, traffic bureau wants the public transportation data system to have a separate interface for passengers. Passengers will use it to, for example, check statistics about which times and routes are most full or delayed.

When specifying the system, the different user groups' opinions are absolutely vital, and the opinion of the excellent UI-experts in the Con-Salting Oy is must for the success of the system. System's connections to other systems must be taken into account: ticket system in the vehicles provides data

from the sold tickets and tracking system in vehicles provides information about times and locations of the vehicles in the move.

Traffic planners are going to be using this new system regularly during planning so they must be able to get route specific information quickly. In addition, they cannot change to more powerful computers, so running simulations must not burden their computers. Bus maintenance crew considers using the statistics of bus usage and driven kilometers to focus their maintenance such as cleaning and repairs.

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